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10/554,249	10/25/2005	Yohei Ikawa	280052US90PCT	2731

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EXAMINER	
ROSATI, BRANDON MICHAEL	

ART UNIT	PAPER NUMBER
3744	

NOTIFICATION DATE	DELIVERY MODE
01/13/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/554,249	IKAWA, YOHEI	
	Examiner	Art Unit	
	BRANDON M. ROSATI	3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 September 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *17-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to the amendment filed on 9/22/2008. Currently claims 1-16 have been canceled and claims 17-42 are pending.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 17, 18, 32, 33, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Utility Model (63-121282) (herein '282) in view of Kado (JP 04288485 A).

Regarding claims 17, 32, and 42, '282 discloses in Figures 1 and 2, a heat exchanger comprising a pair of headers (5, 15), a plurality of flat heat exchange tubes (1), joined to the header, a side plate (19) disposed outside the plurality of tubes, the side plate having opposing projections (21) and opposing upright walls (19') extending towards the outside of the tubes, corrugated fins (3) arranged between the heat exchange tubes and braze joints provided between the headers, tubes, and fins. It is noted that it is obvious and well known to braze these parts of a heat exchanger. '282 does not disclose a pressure member provided between the upright walls having a length greater than the distance between the opposing projections and a fastening member arranged to bind the pressure member. However, Kado discloses in Figure 2, a pressure member (7) and fastening members (8). Hence, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the teachings of '282 with the pressure member and fastenings members of Kado because this configuration would eliminate the hole in the upright wall of '282, which is a point of weakness in the side plate and thus by adding the pressure member, the fastening members would be elevated, the hole would be

eliminated and the overall strength of the side plate would be increased. It is noted that the phrase "without deforming the corrugated fins plastically" is a statement of intended use and the device is capable of performing the function.

Regarding claims 18 and 33, '282 discloses in Figures 1 and 2, a projection (21) that may be positioned up to 135 mm from the header. Although the specific dimension is not disclosed, it would have been an obvious matter of design choice to modify the '282 reference to use this specific dimension, since applicant has not disclosed that having the projection at this distance solves any stated problem or for any particular purpose and it appears that the projection (21) would perform equally well with any cited dimension.

4. Claims 19, 21-24, 26-29, 31, 34, 36-39, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Utility Model (63-121282) (herein '282) in view of Kado (JP 04288485 A) in further view of Baechner et al. (U.S. Patent No. 5,896,916).

Regarding claims 19, 24, 34, and 39, the combined teachings of '282 and Kado disclose all the claimed limitations except two protrusions on the side plate spaced apart widthwise at each end. However, Baechner et al. discloses two projections (i.e. domes) (20) spaced apart widthwise from each other at each end of the side plate (i.e. side part) (6) (Figure 6 and Column 5, lines 39-45). Hence it would have been obvious, at the time the invention was made, to one of ordinary skill in the art, to modify the combined teachings of '282 and Kado with the two protrusions at each end spaced apart widthwise in order to distribute the force of the clamping better so as to not structurally deform the heat exchanger and lower its efficiency.

Regarding claims 21, 26, 36, and 41, the combined teachings of '282, Kado, and Baechner et al. disclose all the claimed limitations including circular projections (Figures 6 and 7

of Baechner et al.). It would be an obvious design choice to one of ordinary skill in the art to vary the diameter of the protrusions depending on how big the side plate was so as to keep the protrusions proportional to the overall size of the plate. It is further noted that this concept can also be applied to the sub projections. Furthermore, although the specific dimension is not disclosed, it would have been an obvious matter of design choice to modify the '282 reference to use this specific dimension, since applicant has not disclosed that having the projection at this distance solves any stated problem or for any particular purpose and it appears that the projection (21) would perform equally well with any cited dimension.

Regarding claims 22 and 37, the combined teachings of '282 and Kado disclose all the claimed limitations except a second protrusion positioned inwardly from the end projection in the longitudinal direction. However, Baechner et al. discloses in Figure 2, second projections (i.e. elevations) (22) which are positioned inwardly from end protrusions in the longitudinal direction (Column 4, lines 50-54). Hence it would have been obvious, at the time the invention was made, to one of ordinary skill in the art, to modify the teachings of '682 with the second projections of Baechner et al., because adding the additional projections along the longitudinal direction would increase the overall increase the support of the pressure member and allow for the heat exchanger to be strapped together more easily.

Regarding claims 23 and 38, Baechner et al. discloses in Figure 2, second projections that may be at a distance of up to 30 mm from the projection at each end. Although the specific dimension is not disclosed, it would be obvious to one of ordinary skill in the art to vary the position of the protrusion based on design choice in order to ensure a better made heat exchanger. Furthermore, although the specific dimension is not disclosed, it would have been an

obvious matter of design choice to modify the reference to use this specific dimension, since applicant has not disclosed that having the projection at this position solves any stated problem or for any particular purpose and it appears that this position would perform equally well with any cited dimension.

Regarding claims 27-29 and 31, the combined teachings of '282', Kado, and Baechner et al. disclose all the claimed limitations including a fastening member (Kato (8)) provided at a location between a header and an opposing projection, the member provided at another location inwardly of a sub projection. It is noted that it would be an obvious mechanical expedient to position the fastening member at any position along the side plate so as to ensure a proper hold between the side plate, fins, and tubes.

5. Claims 20 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Utility Model (63-121282) (herein '282) in view of Kado (JP 04288485 A) in further view of Shimoya et al. (U.S. Patent No. 6,401,804 B1).

Regarding claim 20 and 35, the combined teachings of '282 and Kado disclose all the claimed limitations except having projections with a height of between 0.3-1 mm. However, Shimoya et al. discloses protrusions (i.e. projection ribs) (14) with a height equal to or less than 2 mm (Column 15, lines 40-46). Hence it would have been obvious, at the time the invention was made, to one of ordinary skill in the art, to modify the combined teachings of '282 and Kado with the protrusions having a height between 0.3-1 mm because varying the heights of the projections only instead of the overall thickness of the side plate would allow for the cost of the heat exchanger to be reduced and still allow for the distribution of the force during clamping to occur more efficiently and thus improve the heat exchanger efficiency.

6. Claims 25, 30, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Utility Model (63-121282) (herein '282) in view of Kado (JP 04288485 A) and Baechner et al. (U.S. Patent No. 5,896,916) in further view of Shimoya et al. (U.S. Patent No. 6,401,804 B1).

Regarding claims 25 and 40, the combined teachings of '282, Kao, and Baechner et al., disclose all the claimed limitations except protrusions with a height equal to or less than 2 mm. However, Shimoya et al. disclose protrusions (i.e. projection ribs) (14) with a height equal to or less than 2 mm (Column 15, lines 40-46). It would have been obvious to one of ordinary skill in the art at the time of the invention to make the second (sub) projections the same height as the other projections in order to prevent the heat exchanger from being lop sided and thus interfering with the flow within the heat exchanger.

Regarding claim 30, the combined teachings of '282', Kado, Baechner et al., and Shimoya et al. disclose all the claimed limitations including a fastening member (Kato (8)) provided at a location between a header and an opposing projection, the member provided at another location inwardly of a sub projection. It is noted that it would be an obvious mechanical expedient to position the fastening member at any position along the side plate so as to ensure a proper hold between the side plate, fins, and tubes

Response to Arguments

7. Applicant's arguments with respect to claims 17-42 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRANDON M. ROSATI whose telephone number is (571)270-3536. The examiner can normally be reached on Monday-Friday 8:00am- 4:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler or Frantz Jules can be reached on (571) 272-4834 or (571) 272-6681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BMR 1/2/2009	/Cheryl J. Tyler/ Supervisory Patent Examiner, Art Unit 3744